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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/586,249	05/31/2000	John Erik Lindholm	NVIDP021/P000174	6400

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EXAMINER

GOOD JOHNSON, MOTILEWA

ART UNIT PAPER NUMBER

2672

DATE MAILED: 02/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/586,249

Applicant(s)

LINDHOLM ET AL.

Examiner

Motilewa A. Good-Johnson

Art Unit

2672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 May 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) 1-44, 46, 47, 50 and 51 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 45, 48, 49, 52 and 53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-53 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3, 6. 6) ☐ Other:

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-40, 44 and 50, drawn to arithmetic processing of image data, classified in class 345, subclass 643.
  - II. Claims 45, 48, 49, 52 and 53, drawn to lighting, classified in class 345, subclass 426.
  - III. Claims 41 and 42, drawn to masking, classified in class 345, subclass 626.
  - IV. Claim 51, drawn to data call functions, classified in class 711, subclass 1.
  - V. Claims 43, 46, and 47, drawn to texture processing, classified in class 345, subclass 582.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as processing image data using arithmetic. See MPEP § 806.05(d).
3. Inventions I and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are

shown to be separately usable. In the instant case, invention III has separate utility such as performing lighting calculations on image data. See MPEP § 806.05(d).

4. Inventions I and IV are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention IV has separate utility such as data call functions. See MPEP § 806.05(d).

5. Inventions I and V are related as subcombinations disclosed as useable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention V has separate utility for texture processing on graphics. See MPEP § 806.05(d).

6. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Groups II-V, restriction for examination purposes as indicated is proper.

7. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

8. During a telephone conversation with Kevin Zilka on February 3, 2003 a provisional election was made without traverse to prosecute the invention of Group II, claims 45, 48, 49, 52 and 53. Affirmation of this election must be made by applicant in replying to this Office action. Claim 1-44, 46, 47, 50-53 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

9. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

#### **DETAILED ACTION**

10. This office action is responsive to the following communications: Application, filed on 05/31/2000; IDS, paper #3, filed on 09/29/2000; IDS, paper #6, filed on 09/29/2000; Preliminary Amendment A, filed on 09/05/2000; Preliminary Amendment B, filed on 10/16/2000; Amendment C, filed on 01/24/2002; Preliminary Amendment D, filed on 06/28/2002.

11. Claims 1-53 are pending in this application. Claims 1-44, 46, 47, 50, 51 are withdrawn from consideration. Claims 45, 48, 49, 52 and 53 are pending.

12. The present title of this application is "System, Method and Article of Manufacture for a Programmable Vertex Processing Model with Instructions Set" (as originally filed).

#### ***Claim Rejections - 35 USC § 102***

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

14. Claims 45 and 52 are rejected under 35 U.S.C. 102(e) as being anticipated by Deering et al., U.S. Patent Number 6,424,343 B1, "Graphics System with Programmable Real-Time Sample Filtering", class 345/419, 07/2002, filed 02/1999.

As per independent claim 45, a method for programmable processing in a computer graphics pipeline, comprising: receiving graphics data including lighting information; Deering discloses receiving graphics instructions and data, including lighting information, col. 10, lines 16-26; and performing programmable operations on the graphics data in order to generate output, Deering discloses a programmable sample to-to-pixel calculation unit, col. 4, lines 46-58, and further discloses the units may be programmable to perform conversion of pixels to non-linear light space and other manipulations, col. 13, lines 27-37; wherein the operations are programmable by a user utilizing instructions from a predetermined instruction set; Deering discloses each rendering unit coupled to an instruction and data memory, col. 11, lines 31-42; wherein the operations include a mathematical operations for altering the lighting information of the graphics data. Deering discloses sample-to-pixel calculation unit for reading samples and mathematically manipulating one or more samples, col. 4, lines 1-15.

As per independent claim 52, it is rejected based upon similar rational as above independent claim 45.

### ***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 48, 49 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deering in view of Struble, "Assembler Language Programming; The IBM System/370 Family", 1984, pages 68-89.



As per independent claim 48, a method for processing graphics data, comprising: transforming the graphics data; Deering discloses transformation of graphics data, col. 10, lines 55-59; and lighting the graphics data; Deering discloses lighting of graphics data, col. 10, lines 64-67; wherein at least one of the transforming and the lighting includes performing operations on the graphics data utilizing instructions from an instruction set, the operations including a no operation, a load, a move, a multiply, an addition and a set on less than. Deering discloses rendering units configured to receive instructions and data memory, col. 11, lines 31-43. However, it is noted that Deering fails to disclose instruction set including load, move, multiply, an addition and a set less than. Struble discloses in assembler language, programming for graphics data instructions to perform operations such as load, move, add, subtract and multiply. It would have been obvious to one of ordinary skill in the art at the time of the invention to include in the instruction set of Deering load, move, add, subtract and multiply operations, for basic storage manipulation and movement of graphics data from one memory to another.

As per independent claim 49, it is rejected based upon similar rational as above independent claim 48.

As per independent claim 53, it is rejected based upon similar rational as above independent claim 48. Deering also discloses storing the pixel data by dividing the sample buffer into nested regions and storing the pixel data in a constant sample buffer

of a constant size, col. 24, lines 1-15; sample-to-pixel calculation units work in parallel, col. 18, lines 14-16; and OpenGL application program interface, col. 9, line 6.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Motilewa A. Good-Johnson whose telephone number is (703) 305-3939. The examiner can normally be reached on Monday - Friday 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on (703) 305-4713. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

Motilewa A. Good-Johnson  
Examiner  
Art Unit 2672

mgj  
February 6, 2003

A handwritten signature in black ink, appearing to read 'MRZ', with a long horizontal line extending to the right.

**MICHAEL RAZAVI**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2600**